

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Amendments to the Specification:

Please replace the paragraph on page 1 of International Application Number PCT/CN01/01512 which starts with “Field of the invention” with the following amended paragraph:

~~Field of the invention~~ FIELD OF THE INVENTION

Please replace the paragraph on page 1 of International Application Number PCT/CN01/01512 which starts with “The present invention relates,” with the following amended paragraph:

The present invention relates to a structure of an integrated contact for power switchgear, especially a structure of an integrated contact in an arc extinguished chamber of a vacuum interrupter. It belongs to electrical equipment field.

Please replace the paragraph on page 1 of International Application Number PCT/CN01/01512 which starts with “Background of the invention” with the following amended paragraph:

~~Background of the invention~~ BACKGROUND OF THE INVENTION

Please replace the paragraph on page 1 of International Application Number PCT/CN01/01512 which starts with “Switchgear is an essential equipment,” with the following amended paragraph:

Switchgear is an essential equipment in circuit which plays switching on and switching off function in the circuit. While switching off, switchgear has very high resistance in order to withstand certain voltage; While switching on, it must have very low resistance in order to pass rated current without overheat. During switchgear contacts interrupting, arc extinguishing is necessary to make contacts to be quickly separated. At present, there are different kinds of arc extinguishing medium: oil, sulphur hexafluoride(SF_6), air, semiconductor and vacuum etc. Different arc extinguishing mediums correspond to different interrupter structures and with different properties. As vacuum interrupter has small gap, high withstand voltage, low arc voltage, high current interrupting capability, low electrode erosion and high electric life, so it is broadly used in power line under 35KV voltage. As shown in Figure- 1, the heart of a vacuum interrupter 7 is its vacuum arc extinguished chamber 6 within envelope 5. The properties of contacts 1 and 2 within vacuum arc extinguished chamber 6 determine properties of vacuum interrupter 7 directly. The rear of contacts 1 and 2 of vacuum interrupter 7 is connected to moving electrode 3 and stationary electrode 4, respectively, interruption of contacts 1 and 2 is mechanically operated by moving electrode 3. During interruption, contact area of contacts 1 and 2 is getting smaller until there is only one contact point between contacts 1 and 2. At the same time, contact resistance and area temperature are increased until the contact point is melted, vaporized and ionized. Metal vapor keeps discharge procedure to be continued in vacuum and produces vacuum arc, finally contacts are electrically interrupted. In order to raise interrupting capability of vacuum interrupter, it is necessary to provide vacuum arc with axial magnetic field, which maintains vacuum arc

at a stable and dispersive state. In this way, current will be well distributed on contact surface, temperature on contact surface will be decreased and amount of vaporization of contact material is avoided, all of these maintaining arc voltage at a lower level and decreasing electrical erosion of contact. Therefore, contacts in arc extinguished chamber of vacuum interrupter must have abilities of burning arc, conducting electrically and producing magnetic field. Its technical parameters need to satisfy following requirements: excellent anti-welding characteristics, excellent voltage withstanding characteristics, high current-interrupting capability, excellent anti-electric erosion characteristics, low current chopping characteristics, low air content, high conductivity, small geometric size and high reliability etc. ~~At present~~Currently, the contact consisted of an arc proof component, a conductive component and a magnetic field generating component. As shown in Figure. 2, the arc proof component 11 is set in the middle part and ~~is-consist~~ed of copper-chromium (CuCr) material, which has large current interrupting capability and excellent anti-welding characteristics and produces metal vapor during interrupting time to maintain current. The conductive component 12 is a round contact body and is generally made of copper material. The magnetic field generating component 13 is an inductance coil and set outside of the contact body; whether at an axial magnetic field or at a ~~radial~~axial magnetic field, its magnetic field intensity is comparatively low. When assembledy, it is necessary to solder in a vacuum and heating furnace with silver copper solder to combine the components together. As every component is complicated, ~~once of~~ soldering step can only perform part of the soldering job; so during manufacturing, it is not only necessary to enter vacuum and

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

heating furnace many times for soldering, but ~~also exists~~ the following problems also exist which cause the contact electrical properties to be is not good enough: contact of the soldering surface is not 100%, quality of soldering surface and strength of soldering have not been guaranteed and burr on soldering surface is unavoidable etc. For reasons mentioned above, with ~~present~~ current technology, production of vacuum interrupter not only has low ratio of final product, complicated procedure, these causing high cost, but ~~has no~~ does not have ideal electrical properties ~~as well either~~. In addition, all components need various professional forms of copper-chromium alloy materials and machining work, such as lathing and milling, of the alloy materials is complicated.

Please replace the paragraph on page 2 of International Application Number PCT/CN01/01512 which starts with "There is another product," with the following amended paragraph:

There is another product, developed by HOLEC Co., Netherlands, with ~~present~~ current technology, its magnetic field generating component 13 discards the original coil form and substitutes it with a set of electrical iron sheets 13, which is piled on CuCr arc proof component 11 of contact body and is fasten with rivet 14. Electrical iron sheets 13 have different sizes of break 131, 132 and 133, magnetic field is produced by induced current in the electrical iron sheets, and its concrete structures are shown in Figure- 3 and Figure 4. The piled electrical iron sheets 13 on CuCr arc proof component 11 form a ladder-shaped, when it is seen from front view; this not only simplifies the original contacts structure, but also increases the magnetic field intensity greatly. Even with this

structure, ~~it has no choice to use~~ the soldering method must be used in order to combine the separated conductive component 12 and electrical iron sheet 13 together. As machining methods of the structure are unchanged basically, so its cost and quality still have quite a few problems. In addition, as electrical iron sheets 13 are piled in plane, according to the right-handed screw law, when magnetic induce reaches the break of sheets and goes up layer by layer to form an axial magnetic flux, so the magnetic resistance is comparatively high. Furthermore, as the sheets 13 are piled in a ladder-shaped form, the heat conductive body is an eccentric body; this asymmetrical heat conductive body makes instant heat diffusion effect badly; which not only influences contact interrupting capability, but also makes the whole structure deforms easily.

Please replace the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with “No matter which form,” with the following amended paragraph:

No matter which form ~~it is~~ used, a very important point for the current ~~present~~ contact structure is that, without any exception, every component of it is separately made. Therefore, manufacturing procedures are various, the quality is unstable and the properties are not good enough. This is just like the separated electronic elements in the early days, to implement an electrical function many separated elements needed to be soldered together. This not only increases working procedures and size, but also decreases reliability and properties.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please replace the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with "Except increasing cost," with the following amended paragraph:

Except increasing costs by the complicated structure and manufacturing also procedures ~~said~~ described above, the present technology used to produce the contact wastes ~~a~~ great quantities of contact materials. Either as shown in Fig 2, the traditional structure, or as shown in Figure 3 and Figure 4, the improved structure, remaining leftover bits and pieces after manufacturing of the components cannot be rationally used. So, the cost of the vacuum interrupter is increased ~~naturally~~.

Please replace the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with "Another important point is," with the following amended paragraph:

Another important point is that, with the ~~present~~ current technology the axial magnetic field on the contact surface is not well distributed. At the same time, external stray magnetic fields influence interrupting capability of contacts ~~obviously~~. Especially for the contact of a high volume interrupter, its axial magnetic field is more concentrated on a local part and this leads to a worse interrupting capability under high volume current condition. This disadvantage is a big limitation for production of high volume vacuum interrupters. In practice, accompanying with electricity is widespread used, demand of high volume vacuum interrupter is increased rapidly; for example: an electric generator requires ~~asks~~ control of electrical currents ~~to~~ greater than one hundred and twenty (120)

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

kilo amps (kA), on a distributing line using a vacuum interrupter as an interrupting device.

Please replace the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with "Sunmary of the invention" with the following amended paragraph:

~~Sunmary of the invention~~SUMMARY OF THE INVENTION

Please replace the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with "The main purpose of," with the following amended paragraph:

~~The main purpose of the~~ In one embodiment, the present invention ~~is to provides~~ a multipolar integrated contact with an integrated directly assembleding structure, for power switchgear. ~~With t~~The present invention, ~~there is no~~ eliminates the need of soldering for combining and it changes the separated setting structure of all components in ~~present~~ the current technology.

Please replace the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with "The second purpose of," with the following amended paragraph:

~~The second purpose of~~ In one embodiment, the invention ~~is to provides~~ a multipolar integrated contact with a tight structure and smaller geometric size, for power

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

switchgear. ~~The third purpose of the invention is to provide a~~ A multipolar integrated contact that has a high intensity ~~of~~ magnetic field, good heat conductivity, high interrupting capacity and longer electric live, for power switchgear. ~~The fourth purpose of the invention is to provide a multipolar integrated contact that has an axial magnetic field~~ is well distributed on the contact surface, which is ~~adequate to~~ suited for a high volume interrupter and has a greater ~~higher~~ interrupting capacity, when used for power switchgear.

Please delete the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with “The third purpose of the invention”.

Please delete the paragraph on page 3 of International Application Number PCT/CN01/01512 which starts with “The fourth purpose of the invention”.

Please delete the paragraph beginning at page 4, line 1, of International Application Number PCT/CN01/01512, which starts with “The fifth purpose of the invention”.

Please delete the paragraph beginning at page 4, line 5, of International Application Number PCT/CN01/01512, which starts with “The sixth purpose of the invention”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at pag 4, line 9, of International Application Number PCT/CN01/01512, which starts with “The seventh purpose of the invention”.

Please delete the paragraph beginning at page 4, line 13, of International Application Number PCT/CN01/01512, which starts with “Technical Solution”.

Please delete the paragraph beginning at page 4, line 15, of International Application Number PCT/CN01/01512, which starts with “According to the present invention”.

Please delete the paragraph beginning at page 4, line 17, of International Application Number PCT/CN01/01512, which starts with “A multipolar integrated contact”.

Please delete the paragraph beginning at page 4, line 27, of International Application Number PCT/CN01/01512, which starts with “The said conductive component passes through”.

Please delete the paragraph beginning at page 4, line 31, of International Application Number PCT/CN01/01512, which starts with “The said conductive component is set at”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at page 4, line 34, of International Application Number PCT/CN01/01512, which starts with “The said conductive component is set at middle”.

Please delete the paragraph beginning at page 4, line 37, of International Application Number PCT/CN01/01512, which starts with “Front direction section of the said conductive component”.

Please delete the paragraph beginning at page 4, line 41, of International Application Number PCT/CN01/01512, which starts with “The said magnetic field generating component”.

Please delete the paragraph beginning at page 5, line 1, of International Application Number PCT/CN01/01512, which starts with “The said multi-layer cylinder”.

Please delete the paragraph beginning at page 5, line 4, of International Application Number PCT/CN01/01512, which starts with “The said multi-layer cylinders”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at page 5, line 6, of International Application Number PCT/CN01/01512, which starts with “The said conductive component”.

Please delete the paragraph beginning at page 5, line 10, of International Application Number PCT/CN01/01512, which starts with “The said multi-layer cylinder”.

Please delete the paragraph beginning at page 5, line 13, of International Application Number PCT/CN01/01512, which starts with “The said magnetic field generating component”.

Please delete the paragraph beginning at page 5, line 16, of International Application Number PCT/CN01/01512, which starts with “The said conductive component is a layer shape body”.

Please delete the paragraph beginning at page 5, line 19, of International Application Number PCT/CN01/01512, which starts with “Layer number of the said magnetic field”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at page 5, line 22, of International Application Number PCT/CN01/01512, which starts with “The said container can be a cup-like body”.

Please delete the paragraph beginning at page 5, line 25, of International Application Number PCT/CN01/01512, which starts with “The said container can be made of”.

Please delete the paragraph beginning at page 5, line 28, of International Application Number PCT/CN01/01512, which starts with “The said arc proof component”.

Please delete the paragraph beginning at page 5, line 30, of International Application Number PCT/CN01/01512, which starts with “Ratio of the said mixture”.

Please delete the paragraph beginning at page 5, line 33, of International Application Number PCT/CN01/01512, which starts with “The said pure copper powder”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at page 5, line 36, of International Application Number PCT/CN01/01512, which starts with “The said pure copper powder is 200 mesh”.

Please delete the paragraph beginning at page 5, line 39, of International Application Number PCT/CN01/01512, which starts with “The said pure copper powder is 325 mesh”.

Please delete the paragraph beginning at page 5, line 41, of International Application Number PCT/CN01/01512, which starts with “The said arc proof component is made of”.

Please delete the paragraph beginning at page 5, line 43, of International Application Number PCT/CN01/01512, which starts with “The said copper material”.

Please delete the paragraph beginning at page 6, line 1, of International Application Number PCT/CN01/01512, which starts with “The said conductive component is made of”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at page 6, line 5, of International Application Number PCT/CN01/01512, which starts with “The said conductive component”.

Please delete the paragraph beginning at page 6, line 7, of International Application Number PCT/CN01/01512, which starts with “Material state of the said conductive component”.

Please delete the paragraph beginning at page 6, line 10, of International Application Number PCT/CN01/01512, which starts with “Material state of the said magnetic field”.

Please delete the paragraph beginning at page 6, line 13, of International Application Number PCT/CN01/01512, which starts with “The said magnetic field generating component”.

Please delete the paragraph beginning at page 6, line 16, of International Application Number PCT/CN01/01512, which starts with “The said soft magnetic material”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at page 6, line 18, of International Application Number PCT/CN01/01512, which starts with “State of the said soft magnetic material”.

Please delete the paragraph beginning at page 6, line 20, of International Application Number PCT/CN01/01512, which starts with “Technical effects”.

Please delete the paragraph beginning at page 6, line 22, of International Application Number PCT/CN01/01512, which starts with “According to analysis of technical scheme”.

Please delete the paragraph beginning at page 6, line 25, of International Application Number PCT/CN01/01512, which starts with “1. Technical thinking of integrated structure of the invention”.

Please delete the paragraph beginning at page 6, line 31, of International Application Number PCT/CN01/01512, which starts with “2. It not only greatly expands various derived combination type”.

Please delete the paragraph beginning at page 6, line 36, of International Application Number PCT/CN01/01512, which starts with “3. Magnetic flux is efficiently generated”.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please delete the paragraph beginning at page 6, line 42, of International Application Number PCT/CN01/01512, which starts with “4. As sections of magnetic field generating component”.

Please delete the paragraph beginning at page 7, line 6, of International Application Number PCT/CN01/01512, which starts with “5. Materials of components need not be the alloy”.

Please delete the paragraph beginning at page 7, line 10, of International Application Number PCT/CN01/01512, which starts with “6. Structure of every component is simple and easy”.

Please delete the paragraph beginning at page 7, line 13, of International Application Number PCT/CN01/01512, which starts with “7. It need not use soldering process”.

Please replace the paragraph on page 7, line 16, of International Application Number PCT/CN01/01512 which starts with “Brief description of the zttached drawings” with the following amended paragraph:

~~Brief description of the zttached drawings~~ BRIEF DESCRIPTION OF THE DRAWINGS

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig.1 is schematic diagram” with the following amended paragraph:

Figure_1 is a schematic diagram of the arc extinguished chamber basic structure of present vacuum interrupter.

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig2 is schematic diagram of contact structure” with the following amended paragraph:

Figure_2 is a schematic diagram of the contact structure of present arc extinguished chamber.

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig.3 is schematic diagram of another contact structure” with the following amended paragraph:

Figure_3 is a schematic diagram of another contact structure of present vacuum interrupter.

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig.4 is schematic diagram of plane structure” with the following amended paragraph:

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Figure 4 is a schematic diagram of the plane structure of the magnetic field generating component shown in Figure 3.

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig.5 is perspective schematic diagram” with the following amended paragraph:

Figure 5 is a perspective schematic diagram of the contact structure of the first preferred embodiment of the invention.

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig.6 is magnetic loop diagram” with the following amended paragraph:

Figure 6 is a magnetic loop diagram of the axial magnetic field shown in Figure 5.

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig.7 is schematic central section diagram” with the following amended paragraph:

Figure 7 is a schematic central section diagram of the cylinder setting combining structure of the magnetic field generating component and the conductive component shown in Figure 5.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please replace the paragraph on page 7, of International Application Number PCT/CN01/01512 which starts with “Fig.8 is axial magnetic field” with the following amended paragraph:

Figure 8 is an axial magnetic field distribution diagram on the contact surfaces of the embodiments shown in Figure 5, Figure 6 and Figure 7.

Please replace the paragraph on page 8, of International Application Number PCT/CN01/01512 which starts with “Fig.9 is schematic diagram of contact structure” with the following amended paragraph:

Figure 9 is a schematic diagram of the contact structure of the second embodiment of the invention.

Please replace the paragraph on page 8, of International Application Number PCT/CN01/01512 which starts with “Fig.10 is schematic central section diagram” with the following amended paragraph:

Figure 10 is a schematic central section diagram of the layer setting combining structure of the magnetic field generating component and the conductive component of the embodiment shown in Figure 9.

Please replace the paragraph on page 8, of International Application Number PCT/CN01/01512 which starts with “Fig.11 is axial magnetic field distribution” with the following amended paragraph:

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Figure 11 is an axial magnetic field distribution diagram on the contact surfaces of the embodiments shown in Figure 9 and Figure 10.

Please replace the paragraph on page 8, of International Application Number PCT/CN01/01512 which starts with "Preferred embodiments" with the following amended paragraph:

~~Preferred embodiments~~DETAILED DESCRIPTION

Please replace the paragraph on page 8, of International Application Number PCT/CN01/01512 which starts with "The main thinking of the invention" with the following amended paragraph:

A multipolar integrated contact is disclosed that combines~~The main thinking of the invention is to set~~ contact components, which are separately set using the current technology in original, into a container, which acts as an external package of the contact so that the contact has an integrated whole structure. Specifically, a magnetic field generating component and a conductive component are mutually combined and set at the bottom of the container; an arc proof component is set on top of the combinationing of the magnetic field generating component and the conductive component. The ~~M~~magnetic field generating component has magnetic path open break. The combining of magnetic field generating component and conductive component produces axial magnetic field. The ~~G~~container can be a cup-like body, and its materials is are rigid, melt point of ~~that~~ the container is higher than the melting point of any component in the

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

container, for example, the container material can be rustless steel whose melting point is above higher than eleven hundred (1100)⁰C degrees Centigrade. The cConductive component material can be conductive with respect to, electricity and heat, and have high magnetic resistance. ~~If p~~Pure copper or red copper material can be used, ~~its~~ with a melting point ~~is of one thousand eighty three (1083) degrees Centigrade⁰C~~. In order to ~~achieve~~have a melting state ~~of~~ for the conductive component in a furnace, the temperature of the furnace must be higher than one thousand eighty three (1083) degrees Centigrade⁰C. Therefore, the melting point of the container must be higher than eleven hundred (1100)⁰C degrees Centigrade. Part or all of the materials of the magnetic field generating component are soft magnetic materials, for example electric iron.

Please replace the paragraph on page 8, of International Application Number PCT/CN01/01512 which starts with "As there is a container outside contact," with the following amended paragraph:

As there is a container outside the contact, the state of the arc proof component, the magnetic field generating component and the conductive component can be powder, sheet, bar, tube or block, ~~if they can~~ that produce an axial magnetic field with magnetic flux coming in and going out on the contact surface.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please replace the paragraph on page 8, of International Application Number PCT/CN01/01512 which starts with “The arc proof component 84 is made of” with the following amended paragraph:

In one embodiment, ~~t~~The arc proof component 84 is made of a block or a plate of an alloy material containing ~~of~~ pure copper and pure chromium. ~~For further~~ In one embodiment, that lowersing the cost of materials, for the arc proof component, an alloy material, ~~produced specially,~~ of pure copper and pure chromium is ~~no longer used for arc proof component and~~ is substituted ~~by~~ with a mixture of general copper powder and chromium powder. According to different requirements, the ratio of copper powder and chromium powder can be varied from 10:90 to 90:10. In one embodiment of the invention ~~addition, the copper powder and is preferred 325 meshes, the chromium powder is preferred of 325 meshes~~ is preferred, and the copper powder can be substituted by silver powder.

Please replace the paragraph on page 9, of International Application Number PCT/CN01/01512 which starts with “Embodiment 1, as shown in Fig. 5 – 8,” with the following amended paragraph:

~~Embodiment 1, as shown in Figures. 5 - 8, it is~~ show a schematic diagram of a structure ~~of another preferred according to various embodiments of the invention. Specifically, an~~ arc proof component 84, a conductive component 821, 822, and a magnetic field generating component 831, 832 of contact 8 are set in a cup-like body container 81 with an open top opened. The cConductive component 821, 822, and the magnetic field

generating component 831, 832 are combined and set at the bottom of the cup-like body container 81, and the arc proof component 84 is set on top of the combination of conductive component 82 and magnetic field generating component 831, 832. The sShape of the combination of magnetic field generating component 831, 832 and conductive component 821, 822 is coordinated with the cylinder shape of the cup-like body container 81. As shown in Figure-6 and Figure-8, according to the right-handed screw law, when the conductive component 821, 822 has current flowing, the magnetic field generating component 831, 832 produces a magnetic field, axial magnetic flux of that comes in and goes out onf the contact surface with-multiple times, i.e. the magnetic flux forms close loops, which comes in and goes out onf the contact placed oppositely in multiple times. Therefore, the magnetic field is well distributed on the contact surface, and the contact is suitable to interrupt a high volume of current.

Please replace the paragraph on page 9, of International Application Number PCT/CN01/01512 which starts with "In this embodiment," with the following amended paragraph:

In this embodiment, front sections of the conductive component 821, 822 and the magnetic field generating component 831, 832 are trapeziums in shape. The trapeziums shape of conductive component 821, 822 and trapeziums shape of the magnetic field generating component 831, 832 are mutually coordinated, ~~so~~ the combination of them is correspondsing to the cylinder shape body of the cup-like container.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

Please replace the paragraph on page 9, of International Application Number PCT/CN01/01512 which starts with “Conductive component 821,” with the following amended paragraph:

Conductive component 821, 822 ~~setting~~ passes through the center of the cup-like body 81, and equally divides the cup-like body 81 into two halves, left and right; magnetic ~~field~~ field generating component 831, 832 is isolated by conductive component 821, 822 and is set in the ~~at~~ remaining part of the cup-like body 81. In this embodiment, the conductive component 821, 822 is a combined ~~ing~~ structure of multiple cylinders with different diameters, and a cylinder body is set at the center of cylinders for insertion ~~ing~~ into a central through-hole of the magnetic field generating component. The ~~m~~ Magnetic field generating component 831, 832 can be a ~~more than one~~ multi-layer combined ~~ing~~ cylinder body structure 833 with different diameters and is isolationed ~~ed~~ between the layers. Multiple cylinder body 833 can have one layer of soft magnetic material, or more than one layer of soft magnetic material or all layers of soft magnetic material, to produce different required ~~intensity of~~ magnetic field intensities. ~~Of course, layer~~ In one embodiment, the number of layers in the multi-layer cylinder of the magnetic field generating component 831, 832 is equals to ~~the~~ layer-number of layers in the multi-layer cylinder of the conductive component 821, 822. In addition, the conductive component 821, 822 can also be an entire entity. Furthermore, at the contact top position, a width of the conductive component 821, ~~831~~ 822 can be greater than a real electromagnetic physical gap between two contacts placed oppositely in interrupter, to guarantee axial magnetic field intensity between two contacts.

Please replace the paragraph on page 10, of International Application Number PCT/CN01/01512 which starts with “Embodiment 2, reference to Fig. 9 – 11,” with the following amended paragraph:

~~Embodiment 2,~~ With reference to Figures 9 - 11, in another embodiment, a conductive component 82 is set at the middle of a cup-like body container 81; and from top to bottom, the cup-like body container 81 is equally divided into three parts by the conductive component 82. A ~~m~~Magnetic field generating component 83 and the conductive component 82 are combined, each having a ~~with~~ trapezium shape ~~setting~~; wherein the conductive component 82 and the magnetic field generating component 83 are piled layer by layer with one layer or more than one layer; each layer of the conductive component 82 and each layer of the magnetic field generating component 83 are mutually combined. From bottom to top, the area of each layer ~~area of the~~ conductive component 82 is gradually decreased and the area of each layer ~~area of the~~ corresponding magnetic field generating component 83 is gradually increased. After mutually combining ~~of the~~ the conductive component 82 and the magnetic field generating component 83, the combined ~~ation~~ shape is coordinated with the inner wall shape of cup-like body container 81, and arc proof component 84 is set at top of the combination. According to the right-handed screw law, when current passes through conductive component 82, the magnetic field generating component 83 produces a magnetic field, axial magnetic flux of that three times coming in and three times going out on contact surface, i.e. magnetic flux forms magnetic field close loops with three times coming in

• Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

and going out of the contact placed oppositely. Therefore, on the contact surface, the magnetic field is well distributed and powerful, ~~that~~ and is suitable to interrupt a high volume of current.

Please replace the paragraph on page 10, of International Application Number PCT/CN01/01512 which starts with “Every component of the invention” with the following amended paragraph:

Every component of the invention can be made from various materials with various states. For example, a material of conductive component 82 can be conductive with respect to, electric and heat, and high magnetic resistance, such as copper, its state can be powder, sheet, bar, tube or block; the material used for the ~~of~~ magnetic field generating component 83 can be partly or totally soft magnetic material, such as electrical iron. Part of the magnetic field generating component 83 state can be powder, sheet, bar, tube or block. The sState of the soft magnetic material can be powder, sheet, bar, tube or block.

Please replace the paragraph on page 10, of International Application Number PCT/CN01/01512 which starts with “According to structure design of the invention,” with the following amended paragraph:

According to the structure and the design of the invention, the production process of the interrupter contact can be simplified, ~~as once entering the furnace and once to sealing to~~ and complete the whole assembly. In addition, there is no need ~~of~~ a soldering

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

process; ~~it is not only~~ this saves solder, ~~but also guarantee and increases the~~ reliability of component connection and increases the quality ~~high up standard of the~~ product.

Please add the following seven new paragraphs after the paragraph on page 10 of International Application Number PCT/CN01/01512 which starts with “According to structure design of the invention”:

The integrated structure as shown in the previous embodiments of the present invention packs all contact components into a container. The meaning of this improvement is comparable with an electronic circuit improved from separated elements to an integrated circuit. The whole-integrated structure thoroughly changes the separated setting structure of the current technology, it tightens geometric size, shrinks volume and increases current density.

Embodiments of the present invention, disclosed herein, expands the types of magnetic field generating component and conductive component, that can be used and also makes use of powder materials, and uncertain shape materials, as there is an external packing container. Therefore, various embodiments of the present invention greatly expand the range of general materials that can be used in contacts for vacuum interrupters.

Magnetic flux is efficiently generated, magnetic resistance is low, axial magnetic field intensity is very high and well distributed; magnetic flux comes in and goes out on the

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

contact surface many times and forms its own close loop; and it can better avoid the influence of external stray magnetic fields on the interrupting capability of the contacts; the arc is well controlled and in a diffusion state; contributing to an increase in the interrupting capability.

As sections of the magnetic field generating component and the conductive component are mutually combined; heat conductivity efficiency increases, which raises the interrupting capability, and also solves the damage problem of the contact body caused by deformation due to asymmetry of the heat contactor in the current technology, and it also saves materials, as every cut component can be combined with another corresponding component, reducing leftover bits and pieces during manufacturing.

Components materials need not be restricted to an alloy with a certain ratio of CuCr manufactured specially for a contact, and need not be in a special shape for components, but general copper, iron and rustless steel sections available in the market can be used. This makes manufacturing easy and decreases cost.

The structure of every component is simple and easy to process and assemble. With entering furnace once and sealing once, the whole assemble is completed with high product ratio of up to standard. Soldering processes are not needed; this not only saves solder, but also guarantees connection reliability of the components.

Appl. No.: Not Yet Assigned
Preliminary Amdt. dated August 25, 2003
Atty Docket No.: 081203.P001

As used in this description, "one embodiment," "one or more embodiments," "an embodiment" or similar phrases means that feature(s) being described are included in at least one embodiment of the invention. References to "one embodiment" or any reference to an embodiment in this description do not necessarily refer to the same embodiment; however, neither are such embodiments mutually exclusive. Nor does "one embodiment" imply that there is but a single embodiment of the invention. For example, a feature, a structure, act, etc. described in "one embodiment" may also be included in other embodiments. Thus, the invention may include a variety of combinations and/or integrations of the embodiments described herein.

Please replace the paragraph on page 10, of International Application Number PCT/CN01/01512 which starts with "It will be appreciated to those skilled in the art" with the following amended paragraph:

It will be apparent to those skilled in the art that various modifications can be made to ~~the present cell selection method~~ without departing from the scope and spirit of the present invention. It is intended that the present invention covers modifications and variations of the systems and methods provided they fall within the scope of the claims and their equivalents. Further, it is intended that the present invention cover present and new applications of the system and methods of the present invention.